

STEM Stands for Islam

The acronym STEM means: Science, Technology, Engineering, and Mathematics, but for our purposes here, we will argue and say that it stands for Islam. The grounds for us doing so is because, as will be shown, both Islam and STEM deal with the exact same matter (pun intended).

Matter is defined as anything that has mass, and takes up space; Everything in our physical universe is made up of matter.

Matter exists in a range of forms, and can be observed, for example, on one extreme end, as a very large clump called a hyper-giant star thousands of times bigger than our sun, or, conversely, on the other extreme end, as a very tiny bubble of spacetime foam, zillions of times smaller than a grain of sand.

This, however, is the understanding we get through STEM via the mathematical interpretation of scientific experiments that we carry out on all sorts of phenomenon that we find in our physical world.

So, how does Islam work its way into what can be considered “STEM territory,” one which provides a secular understanding of all things, and is, therefore, deemed not to be within the scope of the types of sacred and spiritual teachings found in Islam?

First, we should note that, in the verses of the Holy Quran which we will examine shortly, the Holy Quran keeps things very short when it makes a scientifically valid point. What we should also note is that Allah ﷻ knows the competency of anyone and everyone who finds themselves holding the Holy Quran, and reading its Glorious Verses.

As we will see in our discussion, this understanding is important, especially when we talk about a reader who is an exponent of STEM, because the knowledge and experience that such a reader brings along with them when reading the Holy Quran, is what helps them to understand the much larger point which Allah ﷻ is making in the Holy Verse that they read.

With that said, as Muslims, we understand that Allah ﷻ is The One who created the heavens and the earths. In fact, He ﷻ says so in the Holy Quran Ch. 65:12:

It is Allah who has created seven heavens and of the earth the like thereof (i.e. there are seven earths, just like there are 7 heavens). His Command descends between them (heavens and earth), that you may know that Allah has power over all things, and that Allah surrounds (comprehends) all things in (His) Knowledge.¹

But the Holy Quran does not just stop there, it also goes on to provide details and descriptions which cater to the minds of the exponents of STEM, particularly with regard to the *quality* of the knowledge that is being presented in the Holy Quran, as illustrated by the following verse:

¹ <https://islamqa.info/en/answers/192413/meaning-of-the-verse-it-is-allah-who-has-created-seven-heavens-and-of-the-earth-the-like-thereof>

Indeed, they who were given knowledge beforehand - when [the Holy Quran] is recited to them, fall upon their faces in prostration.²

Obviously, this reaction happens because of the soundness which “they who were given knowledge beforehand” see in the Holy Verses. It is due in part to the reader having been trained in and having gained an understanding of STEM. It is also due in part to the *practical experience* that they have gained through their work in STEM, once they apply that training. Both factors, knowledge and experience in STEM, serve to condition the reader’s understanding of the laws that govern the universe.

Since we mentioned the existence of matter in the form of a very large clump called a hyper-giant star, let us look at what STEM and the Holy Quran have to say about the object which serves as the basis for STEM’s understanding of what a hyper-giant star is, and about how it works: our sun.

The yellow ball of fire which we see in the sky at daytime, and by which we keep track of each day of our lives as it rises and sets, serves as the model for the STEM-based understanding and analysis which has helped us to figure out much about our universe.

For example, by looking at what makes our sun glow yellow/red, STEM based analysis has revealed that hydrogen, the most basic element found in the universe, is the common factor in all the stars that we will ever see, regardless of their size. And, because of this fact, if we see any stars with elements that are heavier than hydrogen in them, the analysis says those stars are going to give off different kinds of radiation/light waves, and, possibly, be much bigger in size than our sun.

Also, depending on how big they are, and based on various other details, the analysis shows that those stars, once they “die,” they will either turn into a black hole, or a neutron star, or, if they are much smaller, possibly turn into a white dwarf star, which is a special kind of dense, mini star that exhibits totally different characteristics from when it had once been a sun.

These facts provide us an opportunity to compare the points STEM and Islam share, and also to see where their teachings converge.

The chapter of the Holy Quran called Al Takwir, The Reduction/Downsizing, starts off saying:

When the sun turns into a small ball...
Ch. 81:01

This is one of many points where STEM and the Holy Quran meet up in perfect harmony.

The knowledge STEM uncovers by way of experimentation and analysis, is exactly what Islam confirms by way of Allah ﷻ’s Word in the Holy Quran: that our sun will eventually become a small ball.

Exponents of STEM readily understand this to be an accurate description of the phenomenon which they call a white dwarf star; Allah ﷻ skips over the details of white dwarf star formation because those details are obvious to the reader.

² <https://quran.com/17/100-110>

In another chapter of the Holy Book, Al Qammar, the Holy Quran says the following, with the understanding that, as STEM posits, vast amounts of time are needed for observable phenomenon to take place in the universe:

Time has come near, and the moon has been [shredded; ripped; torn] apart...
Ch 54:01

Here, the Holy Quran is confirming the effects of what STEM calls tidal forces (of the earth on the moon).

Basically, according to STEM principles, for any satellite that orbits a planet, like the way the moon orbits the earth, it will eventually, after a long stretch of time, be ripped apart³. As an example, STEM uses this exact explanation to describe the rings around the planet Saturn, Neptune and/or any other planet that has rings around it.

So, through this verse, Islamic teachings are confirming, just as STEM does, that tidal forces do exist, and that they will eventually have an effect on our moon as well.

Furthermore, STEM analysis leads to theories that all the matter in the universe will get recycled in some way, and at some point in time. The proof that STEM has found for this phenomenon is the presence of all naturally occurring elements that are heavier than hydrogen, and that occur without any meddling, experimentation and/or engineering on the part of mankind.⁴

This notion of transformation from one material into another is also covered in the Holy Quran in chapter Al Israh where it says:

(17:49) They say: "When we are turned to bones and particles (of dust), shall we truly be raised up as a new creation?"

(17:50) Tell them: "(You will be raised afresh even if) you turn to stone or iron⁵"

The enormity of what the Holy Quran is saying here is readily understood by exponents of STEM because these verses say that:

1. Allah ﷻ will resurrect each and every human being, even if the very atoms of which they are made are compressed into elemental iron. This is a process that STEM acknowledges requires enormous amounts of force, pressure, and time, and one that takes place in the central cores of stars, eventually causing them to explode as supernovas, for example.
2. Allah ﷻ will strip down that elemental iron back into the original individual carbon/calcium/etc. atoms from which it came. This is an occurrence STEM does not dispute as stellar events showing it is possible for such a reversal to happen have been seen in the fallout of blackhole and neutron star collisions.

and

³ https://en.m.wikipedia.org/wiki/Tidal_force

⁴ https://en.m.wikipedia.org/wiki/Stellar_population

⁵ <https://www.islamicstudies.info/tafheem.php?sura=17&verse=45&to=52>

3. Allah ﷻ will reassemble each and every human back, atom by atom, using the very same atoms from which they had been made during their lives! This is another possibility that STEM cannot rule out for the above-mentioned reasons.

Of course, there are many more Holy Verses which display the same type of harmony and accord with the discoveries made through STEM; however, another effective verse, particularly because of the mathematical basis that lies at the core of STEM, is the following:

Chapter (54:49) sūrat l-qamar (The Moon):

Verily, all things have We created in proportion and measure⁶.

The mention of [بقدر proportion; measure] is very important because in verse 54:49, Allah ﷻ lays claim to the fact that He ﷻ created all things in *proportion*.

The enormity of what is being said here can really be appreciated when looked at with an appreciation of the mathematical essence that lies at the core of STEM: the derivative.

The derivative is a fundamental mathematical idea which lets STEM analysis figure out how just fast something is happening; It is also referred to as a rate of change: a concept without which advanced scientific and technological developments could *not* happen.

In its essence, the derivative is a proportion, a ratio, that helps to focus in on a main factor, also called a variable, in such a way that, by knowing how a variable is affected or changed, usually in relation to time, it gives insights into how a product, service, or object should be designed in the most optimal way possible using STEM.

This ability to gauge and control ratios and/or proportions, aka rates of change, is what has helped to put our civilization leaps and bounds above all the great civilizations of the past. It is at the heart of, among many other things, all the mechanical and electronic devices we have been able to create to make our lives easier and better-off.

That is to say, once we have figured out a rate of change in something, and also how that rate of change affects us in whatever we want to do, we are able to control and modify our physical environment to work in the way we want it to work

Verse 54:49, makes it clear that Allah ﷻ intentionally incorporated the ratios and/or proportions, the very same ones from which we benefit so much, into His ﷻ creation of the universe..

Essentially, this means the reason we are able to benefit from STEM, is because its essence brings us into conformity with Allah's Wisdom, Know-how, and Will.

This is because, by correctly figuring out a derivative, and then by fine-tuning our understanding of the workings of our world, and of our universe, it, essentially, matches up what we want to do with Allah ﷻ's idea of how He ﷻ wants things to work.

⁶ <http://corpus.quran.com/translation.jsp?chapter=54&verse=49>

It is only after we get to this point of accord with Allah ﷻ's Will that we are able to use our knowledge and experience in STEM to create everything that is "scientific" and "technological."

So, what this whole process does is that it brings us into direct physical contact and harmony with Allah ﷻ's Wisdom in a very practical, and tangible way!

As an aside, even in the Bible, there is a verse that says "...Thy will be done on Earth as it is in Heaven...", which is exactly what we are saying the Holy Quran is teaching us, and which is also exactly just what STEM leads us to conclude!

Also of note is that the terms "proportion" and "measure" imply Allah ﷻ has incorporated the laws that STEM refers to as "the laws of conservation" into His ﷻ creation of the universe, all as part of His ﷻ stratagem to help us recognize His ﷻ indubitable presence in our daily lives.

"The laws of conservation" play an enormous role in STEM's ability to help us comprehend real-world situations in terms of going from a scientific hypothesis, to a scientific theory, to a scientific law because they say things like "you cannot get more energy out of something than what you put into it in the first place."

For example, subatomic particle physics, in particular, benefits greatly from the laws of conservation because it continues to find many new phenomenon such as forces, and particles that exist on scales way smaller than those of protons, electrons, and neutrons. An actual example of this type of work is what currently takes place at the Large Hadron Collider (LHC) in Geneva, Switzerland.

One of the most unusual particles that was found due to the laws of conservation is called the Higgs boson. It was predicted to exist, in theory, in the 1970's. This was because its existence, alone, could help account for a discrepancy that came up in the complex ideas STEM analysis helped to uncover. The Higgs boson was confirmed to exist, by experiment, in 2012. None of this would have been possible without the laws of conservation.

In Chapter (62:1-2) sūrat I-jumu'ah (Friday), Allah ﷻ says:

Whatever is in the heavens and whatever is in the earth declares the glory of Allah, the King, the Holy, the Mighty, the Wise.

He it is Who raised among the inhabitants of Mecca a Messenger from among themselves, who recites to them His communications and purifies them, and teaches them the Book and the Wisdom, although they were before certainly in clear error.⁷

The point that Allah is making here is that He ﷻ exists for real, and that the equations, laws, and principles which shape the STEM mindset *are* the laws that He ﷻ Himself, alone, has created: they glorify Him ﷻ and Him ﷻ alone.

He ﷻ is also saying that He ﷻ is The One who set these equations, laws, and principles as the main factors which make the universe work the way it does, and that the testament for this is the STEM exponent's own direct knowledge and practical experience.

⁷ <http://corpus.quran.com/translation.jsp?chapter=62&verse=1>

Recall that we had earlier said that there is an understanding which STEM provides us through mathematical interpretation of scientific experiments done on physical phenomenon.

This is why Allah ﷻ says:

Say: "Whether ye believe in it or not, it is true that those who were given knowledge beforehand, when it is recited to them, fall down on their faces in humble prostration."⁸

Thus, based on what the Holy Quran says here, if the exponents of STEM are truly committed to their knowledge, and if they truly understand what is being shown to them in the verses of the Holy Quran, the result will be that they will acknowledge the existence of Allah ﷻ, and accept Him ﷻ as their Lord, without any doubt or hesitation whatsoever.

Thus, once they realize the situation they are in, and see themselves in the presence of their Lord, Allah, The Almighty, The Wise, they will fall into prostration to show Him ﷻ, and themselves too, that they truly acknowledge His ﷻ Glory and Majesty, and because they also recognize that He ﷻ, God, really, truly exists, and that He ﷻ is not a fantasy or folklore as they may have previously thought, or as they may have previously been led to believe.

The main reason for such a revelation will be that their own knowledge and practical experience will have verified the Word of God, which they see in the Holy Verses of the Holy Quran.

In fact, regarding the prostration "they who were given knowledge beforehand" will do, and in relation to everything we have discussed so far, and in addition to it, the Holy Quran says:

[they who were given knowledge beforehand, as they prostrate] will say, Glory to our Lord! Our Lord's promises are bound to be fulfilled.
Ch. 17:108

This is an acknowledgement on part of the ones who do such a prostration because they will have put two-and-two together, i.e. their own knowledge and practical experience, as well as Allah ﷻ's Word, and they will have realized that things in the universe already do happen, just as Allah ﷻ says they do, and that they will yet also happen, just as Allah ﷻ says they will yet also happen.

Glory be to Him ﷻ, and to Him ﷻ alone!

It is for these reasons we can confidently conclude that: STEM stands for Islam.

Wishing all the sisters and the brothers, particularly the ones in the STEM fields, continued success, and also a special birthday wish to my mom, SF Begum: Happy Birthday, Mom!

Your Brother in Faith,

SMH Razvi
13th Dil Qada/Jul. 5th, 2020

⁸ <http://corpus.quran.com/translation.jsp?chapter=17&verse=107>